

# A Call for Effective Leadership System Addressing Road Safety Risk factors to Save Lives and Property Losses in Ethiopia: A Thematic Analysis

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## Abstract

*Road traffic accidents (RTA) are currently a leading cause of death, disability, and economic loss worldwide. This is particularly true in Ethiopia, where a context-dependent studies were not yet conducted to identify how the leading system contributes to the accidents. Examining risk factors for road safety and the leadership system that go along with them is the purpose of this study. Primary and secondary data sources were used. The primary data was gathered from lead agency representatives, transportation authorities, and traffic police officers at the federal, regional, district and municipal levels using focus group discussions (FGDs) and in-depth interview modalities. The collected data from both sources were thematically analyzed. The study found that the provision of road safety assurance in Ethiopia has been hampered by interrelated factors attributed to drivers (reckless use of seatbelts, excessive speeding, and lack of professional competence), deviant traffic control and license provision behavior, road quality and usage, and vehicle conditions. Ineffective road safety leadership system is found to be the root cause of all the risk factors mentioned above. The system is characterized by poor lead agency structure, inadequate legislation that are adapted to each risk factor for road safety, a lack of implementable road safety policies, strategies, and public support mechanisms, and an absence of technology-supported accident data management systems. This implies that implementing strong leadership that enhances and puts the aforementioned measures into place in a coordinated manner at all levels with political commitment ensures road safety in the nation.*

**Keywords:** Effective Leadership System, Ethiopia, Road Safety, Saving Lives, Property Losses,

## **Introduction**

Road traffic accidents (RTAs) are currently a major cause of human death and disability, particularly in productive ages across the world. The lives of almost 1.3 million people are cut short annually as a result of traffic accidents (World Health Organization [WHO], 2022). There are between 20 and 50 million more non-fatal injuries, and many of these result in disabilities. The same source also reveals that RTAs result in significant economic damages for victims, their families, and entire nations. These costs result from the price of medical care, lost wages for individuals who are killed or rendered incapacitated by their injuries, and caregiving expenses for family members who must take time off from work or school to look after the injured. Most nations lose 3% of their gross domestic product to road accidents. Particularly in low- and middle-income nations, the issue is so serious. More than 90% of RTA-related deaths worldwide take place in these low- and middle-income nations (WHO, 2022). The high price being paid for mobility in terms of human loss and suffering is forecasted to rise to unprecedented levels.

Linked to this, multidimensional factors are named as causes for road traffic accidents. For example, recent studies indicate that, globally, problems associated to road safety are arising from speed management (Gaca & Pogodzińska, 2017), infrastructural conditions (WHO, 2015), vehicle safety standards and enforcement of traffic laws (Maqbool, Sethi, & Singh, 2019); drink driving, speed driving, and seat belts as the major road safety causes (WHO, 2018).

This is linked to the assertion that the extent of road crash fatalities was significantly influenced by the leadership system for road safety. Due to differences in their intervention leadership strategies, several countries throughout the world have made varying degrees of progress in reducing traffic accidents over the past few years (**figure 1**). Countries with strong system leadership have made significant progress in reducing road accidents. A lack of strong leadership in the government and private sectors makes it impossible to consistently implement the best solutions, which has a negative impact on road safety (Shrivastava, Shrivastava & Ramasamy, 2014; WHO, 2019). Effective road safety leadership system is expressed by stakeholders' integration (Eusofe & Evdoride, 2017), strategic communication (Adamos, Nathanail, & Kapetanopoulou, 2013), holistic road safety policy and structure (WHO, 2019). These factors are accentuated under the umbrella of road safety leadership system technical packages produced and lunched by WHO in 2017 (Peden & Khayesi, 2018). Countries that lack the ability to create realistic road safety targets, implement effective strategies and action plans, and evaluate the results are unable to mitigate the disastrous effects of road crash (World Bank, 2019). A study conducted by Shrivastava and Shrivastava (2019) also revealed the fact that road safety cannot be ensured where and when the leading agency is weak in recognizing the scope of the issue and developing practical strategies that produce lasting outcomes.

In a figurative sense, as indicated in **figure 1**, the distinction between countries that continue to experience unacceptably high problems with road safety, and those that have improved shows the relative influence of effective leadership. For instance, in low-income

countries where only 1% of the world's motor vehicles are found and the practice of road safety leadership is weak, the risk of death in traffic accident is 27.5 per 100,000 people, which is more than three times greater than the average rate in high-income countries, which is 8.3 per 100,000 people (WHO, 2018).



FIGURE 1: Comparison of road crash fatalities among different income level countries (WHO, 2018)

One of the low-income nations that experiences accidents related to road safety is Ethiopia. According to United Nations(UN, 2020), the annual number of fatalities from traffic accidents in Ethiopia increased by more than twice in twelve years between 2007 and 2018, going from 2,161 to 4,597. According to this data, though Ethiopia is among the relatively least motorized countries, there were almost 43 fatalities per 10,000 automobiles in 2018. Despite adopting the United Nation’s Decade of Action for Road Safety (WHO, 2015), which challenged member nations to reduce road traffic fatalities and injuries by 50%, the nation has not been able to meet the target. Contrarily, as shown above, it has experienced a sharp rise in the number of traffic-related fatalities and serious injuries. Actual fatality figures may in fact be much larger than those reported by the Ethiopian Federal Police Commission since underreporting and misclassification of road traffic fatalities is so common. The World Health Organization (WHO, 2018) report indicated that the estimate of road fatalities was 27,326 in 2016, a more than six-fold increase over what the country reported.

Few studies conducted in developed countries highlight the various types of leadership system developed and implemented to gain advantages in road safety as well as the various attributes they need to take into account when developing a safety culture. Their findings show that their success is apparently insignificant particularly in low income countries like Ethiopia. To

put it bluntly, no study has particularly addressed how road safety leadership system are systematically thought out, created, and applied in Ethiopia to support the development of road safety culture. This can be an indicative that the issue has not long been the focus of leadership and research agenda. This apparent failure calls for this study and similar others to bridge the gaps through examining current road safety leadership practices, drawbacks, opportunities and threats. In order to conceptualize road safety leadership, the objective of the study is framed in the following general and specific objectives.

### **Objective of the Study**

The general objective of the study is investigating the characteristics and practices of road safety leadership in Ethiopia. More specifically, the study aims

- *to identify road safety risk factors in Ethiopian context*
- *to examine structural designation of road safety leading agency of Ethiopia*
- *to describe existing road safety regulations in Ethiopia*
- *determine whether or not road safety issues have been led by policy and strategic frameworks*
- *to examine how partnership and collaboration, and awareness pertaining to road safety have been raised*
- *To investigate how data on road safety has been gathered and harmonized.*

In doing so, the study contributes to the nation's call for effective road safety leadership strategies, thereby fostering a culture of safety and tackling the problems associated with road safety leadership.

### **Theoretical Framework of the Study**

The quest of "sustainable development" in the context of a complex global socio-economic and environmental challenges and opportunities has become more and more an important criteria for defining and evaluating human behavior. The leadership of today, whether it is in politics, business, or civil society, must function within the framework of a dynamic system of international challenges and trends. Leadership is about establishing a vision, ideas, and a course of action. It also involves motivating others in the system of decisions and operations to pursue similar objectives (Batten, 1989). In the context of this study, leadership entails articulating a vision for road safety, developing road safety policies and strategies, and organizing courses of action for putting those policies and strategies into practice. In these courses of action, ensuring collaboration is the critical issue. A varied set of actors, including those from the health, transportation, financial, educational, and law enforcement sectors, must collaborate under the leadership of the road safety system. Assuring road safety is the leadership priority of society at all levels, according to discussions held at the fifth UN Global Road Safety Week (WHO, 2019).

That entails lawmakers enhancing laws, mayors creating bicycle and pedestrian-friendly cities, head teachers requesting sidewalks and speed limits surrounding their schools, and parents acting as role models for their kids. Young people can also take the lead by promoting safer peer behaviors and safer systems that encourage these behaviors.

The study adopted the analytical framework from (WHO, 2018) and used it to conceive the objectives and analyze the data collected utilizing various qualitative data collection methods. The framework includes practices and challenges of road safety leading agency establishment, development of implementation, and evaluation of road safety policy and strategies, road safety data management, and working with the public to raise awareness and support.

The roles and responsibilities of lead agencies are expected to be effectively practice national road safety efforts to develop and revise legislation, monitor, and evaluation. The expected practices include having the authority and resources to oversee the implementation of the national road safety strategy, working to develop legislation and policies and ensuring their implementation, finding ways to lay the groundwork for action, such as by signing significant international conventions and agreements related to road safety, collaborating with communities, managing fleet safety, managing the people who drive for a living, and creating opportunities for action at local, national, and international levels.

The lead agency creates a multi-sectorial strategy that ensures the involvement of several stakeholders and that it has time-bound goals. It analyzes the whole road safety program's implementation to ascertain its effectiveness and progress; provides specialized evaluations as required, such as automobile evaluations, road safety audits or inspections, safety ratings of roads, reviews of road design standards, reviews of investment levels in road traffic agencies, and evaluations of the national emergency care system.

It is necessary to harmonize and improve road traffic injury data, adopt a uniform definition of a road traffic death to be used by the police, and linked with all pertinent data sources, such as vital registration, police, and health center, train police on injury severity assessment, take measures to reduce underreporting, use available data to plan interventions, and enhance data collection and analysis in order to reduce the problems with road safety.

Through increased public support and knowledge, road safety is ensured. The leading agency must educate decision-makers and pertinent experts on the significance of reducing traffic-related deaths and injuries. Through extensive media campaigns, it is anticipated that the general public would become more aware of the risk factors for road safety and the preventative actions. It takes more than simply a person's knowledge and abilities to alter behavior in the area of road safety to reduce deaths. Community support, awareness of vulnerability and risk, engineering measures, suitable legislation, and severe enforcement are required to support it. Of course, only when other solutions are implemented in conjunction with social marketing and

educational initiatives to raise awareness of road safety issues will the enforcement measures be effective.

## **Methodology of the Study**

### ***Study Philosophy and Approach***

In order to emphasize and approach the topic from a practical standpoint, where knowledge is continually questioned and understood, and pragmatism is applied in the study. As a result, the researchers incorporated some subjectivity and their engagement, particularly when inferring conclusions from the replies of study participants. Because of the nature of the data, the procedure we followed, and the expected output, this study employed the qualitative research approach with a case study strategy since the goal is to thoroughly grasp the target case within the context of the study. Additionally, data was gathered from preexisting sources using an archival research strategy, and meaning was then established through the analysis of these data.

### ***Time Horizon***

There are cross-sectional and/or longitudinal temporal periods in research activities (Bryman & Bell, 2015). A longitudinal study is one that tracks a phenomenon or a population through time (Caruana, Roman, Jules Hernández-Sánchez & Soll, 2015). A cross-sectional study, sometimes known as a "snapshot" study, is one that examines a phenomena or a cross-section of the population for a single instance (Setia, 2016). Because of the nature of the study, cross-sectional study was chosen as the best fit for this investigation.

### ***Research Techniques and Procedures***

Both secondary and primary data were used. The sources of secondary data are both past and recent published and unpublished Ethiopian government road safety documents (the FDRE National Road Safety documents), police reports, UN and WHO reports, and other study findings.

The sources of primary data are different regional and federal level office representatives as indicated in the following **table 1** with their participant' ID and methods of data collection. A total of 21 data sources were targeted of which 17 were addressed using interview with individuals representing their offices concerning road safety, and the remaining 4 sources were addressed using Focus Group Discussions (FGDs). Some of these sources were from offices representing the country as the whole, and Ormoia was purposively taken with the justification that the region has prone traffic flows that connect the whole regions and two city administrations.

Participant ID	Data collection methods	Sources of data
P <sub>1</sub>	Interview	Expert, Oromia Transport agency
P <sub>2</sub>	Interview	Oromia Insurance Company representative
P <sub>3</sub>	Interview	Awash Insurance representative
P <sub>4</sub>	Interview	Ethiopian Insurance Corporation

P <sub>5</sub>	Interview	Melka Transport association representative
P <sub>6</sub>	FGD	Experts , from zone and district traffic police (8 individuals)
P <sub>7</sub>	Interview	Expert, Ethiopia Road Asset Management
P <sub>8</sub>	Interview	Jimma Town, Transport and Traffic expert
P <sub>9</sub>	Interview	Jimma Town Police commissioner representative
P <sub>10</sub>	Interview	Academics, Jimma University representative
P <sub>11</sub>	Interview	Jimma Town, Bajaj owner association representative
P <sub>12</sub>	Interview	Federal Road Safety and Insurance fund Service representative
P <sub>13</sub>	Interview	Consultant , Federal Road Safety and Insurance Fund Service
P <sub>14</sub>	Interview	Experts, Federal Road Safety and Insurance fund services
P <sub>15</sub>	Interview	Jimma Zone Transport Agency representative
P <sub>16</sub>	Interview	Ethiopian Road Authority(ERA) representative
P <sub>17</sub>	Interview	Vehicle Technical Inspection representative
P <sub>18</sub>	Interview	Regional road safety agency(Oromia)
P <sub>19</sub>	FGD	Team of Regions and city administration transport agency(5 members)
P <sub>20</sub>	FGD	Team of Traffic police From regions and city administrations (6 members)
P <sub>21</sub>	FGD	Team of Federal Road safety and Insurance fund services(6 members)

TABLE 1: Data collection methods and sources of data

Both the interview and FGD tools were first prepared in English, and these tools were translated into respective regional working languages (Amaharic and Afan Oromo) to secure the data needed for the study. Appropriate cares were taken in the process of preparing, translating, and using these tools to adhere to the required instrument quality and ethical standards. Secondary data were collected through desk review which involved a critical examination of policy and strategy documents, relevant research articles and official reports.

The data secured through the interviews and FGD were first transcribed verbatim and translated into English. Then the transcribed data were cleared, coded, and organized thematically to undertake critical analysis in the effort to answer the research objectives. The mechanisms of debriefing and checking were used to ensure the quality of the data. The data processed through these ways were then analyzed qualitatively through integrating data generated from different tools. According to their needs, the codes and response frequencies in tables (1), (2), and (3) were used to present quotes and paraphrases from the study participants' responses. In addition, the results from the analysis of primary data were further examined and verified against the information from the desk review.

## **Result and Discussion**

### ***Road Safety Risk Factors***

As was indicated in the study's background section, Ethiopia is among the top level categories for the number of RTAs that result in loss of life and property. It continues to have a significantly

higher rate of traffic fatalities than other African nations (UN, 2020). Regarding risk factors for road safety, behaviors of drivers, pedestrians, passengers, vehicles' availability and conditions, road engineering and management, drivers' licenses, and traffic and controlling personnel behavior were taken as study variables. Based on data collected using the interview modality and secondary sources, these variables were analyzed and directed in the following **table 2** and the subsequent part as follows.

Theme	subthemes 1	Subthemes 2	Frequencies of responses
Road safety risk factors	Drivers behavior	Excessive Speeding	18(85.7%)
		Driving under the influence of drug substances like 'chat', and Alcohol	11(52.4%)
		Negligent use of seatbelts and helmets(motorcycle)	13(61.9%)
		Early age driving, particularly motorcycles	8(38.1%)
		Long driving without rest	7(33.3%)
		Uncontrolled nighttime driving	6(28.6%)
		Competence (Knowledge Attitude, and skill) driving	14(66.7%)
	Behavior of traffic flow controlling personnel	Deviant behavior of traffic flow controlling personnel	6(28.6%)
	Administration of driving license	Maladministration of driving license	9(42.86%)
	Vehicle conditions and accessibility	Substandard of vehicles (age, technical inspection)	8(38.1%)
		Shortage of passengers cars	7(33.3%)
	Pedestrians behavior	Pedestrians road use behavior	6(28.6%)

TABLE 2: Road safety Risk factors themes and responses (Own interviews)

From among the parties that are involved in the system of road safety, drivers are usually given the lion's share of responsibility. Approximately more than 52.39% of RTAs are attributed to drivers' behavior, according to interview data conducted with different study participants. Driving under the influence of drug substances like 'chat' and Alcohol contributed (52.4%), excessive speeding(85.7%), negligent use of seatbelts and helmets(motorcycle)(61.9%), early age driving (being less than eighteen years old)(38.1%), continuous long driving (without taking enough rest and sleep)(33.3%), and uncontrolled nighttime driving(28.6%) are what participants have commonly mentioned as problems associated with drivers. Almost all study participants agree that the mentioned factors are significant contributors for the frequent occurrence of road accidents of which over speeding has taken the lead.



The effect of unsafe driving behavior was also revealed in the study conducted by (Abojaradeh, Jew & Ababsah, 2014). Driving over the recommended speed limit is one of the worst driving habits. This was backed by a scientific study conducted by (Finch, Kompfner, Lockwood & Maycock, 1994), which found out that a 1 km/h increase in average traffic speed causes a 3% rise in the frequency of accident crashes and a 4-5% increase in fatal crashes. According to (WHO, 2015), excessive and inappropriate speed caused one-third of fatalities and serious injuries. The severity of accidents may be impacted by failing to use a seatbelt or helmet. The same sources in different time emphasized that the higher driving speed, the higher possibilities of causalities. A 5% reduction in average speed can reduce the number of fatalities by 30%. Regarding driving under the influence of drug substances, studies have shown that an estimation that between 5% and 35% of all road crash deaths are reported as caused by drink-driving (Vissers, Houwing & Wegman, 2018). Driving after drinking significantly increases the risk of involving in crashes (Elvik, 2009).

Linked to the mentioned drivers' behavior, lack of professional driving competence (knowledge, attitude, and skill) is a key factor that affects drivers' behavior, according to the interview data (66.7%). Although the would-be-drivers are obliged to join driving schools to get the required knowledge, skill and attitude before getting licensed, they mostly do not exhibit such when they are behind the wheels. Below is how a participant has put the problem attributed to drivers: *“Even if drivers get education and training, attitudinal change is not materialized. Drivers for example know that over-speeding leads to fatal accidents. However, they mostly overlook it” (P<sub>20</sub>).*

The study has also discovered that there are other elements, such as acts of some deviant traffic flow controlling personnel, and some officers who issue driving licenses illegally; these practices may seem external to drivers, but they significantly contribute to the prevalence of dangerous driving behaviors. The few but very impactful reckless actions of the controlling units at the grassroots, among other factors, are sometimes themselves feeding such erratic driving behavior (28.6%). This shows how poorly the traffic controlling police have been managing their work performance standards. According to the study's participants, the aforementioned units' apparent deviant conduct includes poor time management that exposes drivers to rent-seeking behavior. Following is how the study participant attributed the traffic police work behavior:

*Basically, their working time is from 6:00 in the morning to 6:00 at night. But they disappear from the line after 2:00 or 3:00 in the afternoon. So, every driver focuses on the ways they can increase their income rather than thinking about their own and the lives of their pedestrians (P<sub>8</sub>).*

The other study participant, a traffic police official, explained the controllers' bizarre behavior as follows:

*Some say that if you give a controller as little as 200 or 500 Birr, he will disappear from the roadway. As a consequence of the complaints from the public, we have changed three street-level inspectors in this regard. Drivers bribed inspectors to allow them to charge whatever they wanted, including for over speeding (P<sub>19</sub>).*

According to the study participants, the administration of driving licenses is one of the main causes of erratic driving behavior in this country due to the inaccessibility of licensing provision in some locations and corrupt issuing procedures in others (42.86%). Forged drivers' licenses have been issued from a number of sites without the necessary driving skills. One study participant from the Districts of Jimma Zone who expressed their concerns has put it as follows:

*We cannot easily access training opportunities because we are far from where the training opportunities are available, Jimma Town. We attempted to have the access at the nearby places but failed because of unclear bureaucratic and controlling practices. As a result, the majority of the motorbike riders are driving without having competency based driving license (P<sub>15</sub>).*

In nations like Ethiopia, the behavior of pedestrians also affects the assurance of road safety. 28.6% of the interviewed participants responded that pedestrians have their own contributing influence for RTAs. They noted that there is a considerable difference between pedestrians who can but choose not to obey traffic laws and those who are not able to and are prepared to learn. Those in the first type of pedestrians are aware of how to share the road and use the available services but fail to do so; they do so while they are allowed. The second group does not know how to use the road properly, but they are willing to learn if they are given the opportunity for orientation. Numerous fatalities from traffic accidents have been reported in both situations. According to United Nation's Ethiopian road safety performance review of 2018, with up to 33% of fatalities in 2018, pedestrians were the second most vulnerable group of road users in the nation. When compared to other categories of road users, pedestrian deaths made up the largest portion of traffic-related deaths in towns and cities.

The other road crash contributing factor is vehicles condition and supply. According to the interview findings, poor vehicle quality is another factor contributing to 38.1% of deadly road crashes. The standard of the vehicles, their service years (age), and the maintenance and repair services (technical inspection) provided to them are elements that are connected to the vehicles that are liable for road crash in Ethiopia.

It is undeniable that older automobiles frequently cause crashes. Vehicles' service years are not adequately restricted in the nation and their required inspection has not been carried out in a proper manner. According to a report by (UN, 2020), the number of imported old cars has increased significantly, maximizing the possibility for the occurrence of severe accidents:

*The ages at which used cars have been imported are largely to blame for Ethiopia's aging motor vehicle fleet. The average age at which motor vehicles are imported has increased over time, rising from 15.5 in 2000 to just slightly less than 20 in 2016. This represents an increase of more than 25%. The country's efforts to improve road safety also pay minimal attention to the vehicle inspection system. The data from the inspection participants support this fact by stating as “although the government has made an attempt to put into place a program for routine vehicle inspections to ensure compliance with established safety regulations (Proclamation No. 681/2010), little is known about how effective this program is at raising road safety in the nation because of methodological weakness and unfitted technologies.*

In support of this, responses from the study participants indicate that one of the assurances of the quality inspection (called, *bolo*) is granted to the cars without checking them up. As a participant put, “*bolo* is given just because the traffic authorities will punish drivers who failed to display the *bolo*, and not because the vehicle satisfies the required inspection standards” (P<sub>21</sub>).

When claiming to be in the forefront of road safety, one must take into account vehicle availability and condition, especially for passenger transport. There are not enough options for passengers to the same degree in Ethiopia. The study participants asserted a link between the lacks of passenger cars and traffic accidents since this lack of cars is evident both in major cities like Addis Ababa and in certain local areas (P<sub>9</sub>, P<sub>14</sub>, and P<sub>19</sub>). Hence, over-capacity use of the available passenger vehicles is so common; occasionally, in some locations, freight transport vehicles are used of for passengers. Both of these practices would contributor for an increased number of fatalities and severe injuries when traffic accidents occur.

Road engineering problems are another topic underlined by the study participants as a cause of traffic accidents. Design standards, design guidelines, traffic volume composition, uniform traffic control devices, and standards for road maintenance are all interrelated issues that need to be taken into consideration while we count road crash fatalities. Using the road to Jimma as an example, a study participant from the Jimma Zone stated the following about his observations regarding how the road contributes to crashes:

*For instance, if we take the road to Jimma, many places lack roadside safety signs, while others have already been damaged or vanished. Those that are broken are not promptly maintained. There is no accountable entity to enforce it. Many organizations assert that they are not responsible for it and that it is the responsibility of other offices. All vehicles on the damaged roads attempt to take better routes and frequently take detours. Accidents are reportedly caused by this frequently. Then, who is morally and procedurally responsible for this? (P<sub>7</sub>)*

In support of the aforementioned, a study participant describes his perception that city roads are poorly managed and are frequently sources of accidents as follows:

*In front of the road, buildings for hotels or banks are built without parking spaces. The ground floor, which would normally be utilized for parking, is now used for market activities. For instance, buildings are required to have parking spaces under modern leadership thinking. There are hotels without parking in our nation. Moreover, banks and other commercial operations are located very close to the highway. How can road safety concerns be ensured while the roads are in such poor condition? (P<sub>9</sub>)*

Who is responsible? Practices in other exemplary nations demonstrate that the root causes of the aforementioned road safety issues are all connected to the leadership system, which is explained by a holistic and integrated road safety structural designation, safety culture, policy and strategy, and regulations that could control all behavioral impediments. How is Ethiopia's leadership system for road safety workout? It is the second central question that this study has themed in the following **table 3** and explained subsequently as follows.

<i>Theme</i>	<i>Subthemes1</i>	<i>Subthemes2</i>	<i>Frequencies of responses</i>
<i>Road safety leadership system</i>	<i>Road safety Lead Agency structure</i>	<i>Uncoordinated structure</i>	16(76.2%)
	<i>Legal Framework Initiatives and Practices</i>	<i>Lack of holistic and harmonized regulations</i>	15(71.4%)
	<i>Policy and Strategic Framework Initiatives and Practices</i>	<i>Lack of pertinent policy and strategy</i>	12(57.14%)
	<i>Partnership and Road Safety Culture</i>	<i>Weak partnership development system</i>	9(42.9%)
	<i>Rising Awareness and Public Support</i>	<i>Lack of versatile and integrated communication system</i>	13(61.9%)
	<i>Road Safety Data Management</i>	<i>Lack of technology supported data management system</i>	16(76.2%)

TABLE 3: The nature of Road safety leadership system and its subsequent subthemes in Ethiopia (Own interviews)

### ***Road Safety Leading Agency structure***

A separate institutional arrangement oversaw safety in the transportation industry. The National Road Safety Council of Ethiopia (NRSCE) was established as a lead organization within the Ministry and with its own Secretariat by the Ministry of Transport Regulation No. 205/2011 enacted by the Council of Ministers. According to the report done by SSATP Africa Transport

policy program (SSATP, nd), the NRSCE was composed of the State Minister of Transportation (Chair), State Ministers of Communications, Education, Health, Justice, Urban Development, Housing & Construction, Finance & Economic Development, Director Generals of the Ethiopian Roads Authority, Ethiopian Road Fund, Road Transport Authority, as well as the Federal Police Commissioner. While its official name was Ethiopian Transport Authority, the Ministry was formerly referred to as "*Menged Transport*," which means "*Road Transport*." With the aim of creating a road traffic safety policy and coordinating its implementation, the authority's two sections, the Road Safety Monitoring Directorate and the Road Safety Awareness and Education Directorate, were established and their authorities and responsibilities were stipulated by the regulation.

However, a research conducted by (Memon, 2018) on the institutional structures of the NRSCE highlighted a shortage of qualified professionals and technical specialists, as well as a lack of the necessary resources including finance, as the system's inhibitors. The difficulty at the time was system integration (UN, 2020). At the national and regional levels, institutional systems were fragmented. Road safety is included with other transportation-related operations or road development at the regional level and is overseen by the transport bureau. This shows that efforts to reduce the number of fatal traffic accidents was hampered by a lack of both vertically and horizontally integrated work and shared road safety culture. Interviewees from Road Safety and Insurance Fund Services stated the weakness of the previous leadership as "*road safety was previously managed in a rather haphazard way and it was not based on an end-to-end integration of approaches and efforts*" (P<sub>21</sub>). Thus, the data leads to conclude that the country's failure to meet its signed UN Road Traffic Convention 2020 aim of halving road fatalities can be attributed to NRSCE's improper usage and implementation of the time's road safety proclamation. As the result, the new system was thought and established.

As a result of the merging of the Ethiopian Transport Authority and the National Road Safety Council (NRSCE), which was mandated by the Council of Ministers Regulation, a new Road Safety and Insurance Fund Service Directorate has been created by Council of Ministers. It is being reorganized with new, research-based personnel who will execute its duties with an "end-to-end" road safety leadership scope. "End-to-end road safety leadership operation," according to the respondents, refers to the five pillars of the theoretical based road safety leadership. The first is improving management of road safety, followed by law enforcement, engineering, post-crash response, and vehicle safety and safe mobility, which includes pedestrians. Additionally, it brings the formerly separated post-crash management responsibilities (medical care and insurance payments) into one lead agency. The integration of the administrations at the federal, regional, local and city levels has been taken into account when devising the new lead agency formation initiative with the hope that it will ease the difficulties associated with improving road safety leadership.

### ***Road safety Legal Framework***

Several road traffic legal frameworks have been enacted in Ethiopia over the years, including the most recent amendment proclamation on "Driver's Qualification Certification License," or Proc.No.1074/2018. A few alterations have been noted in the process of establishing the country's legal framework for road safety, including amendments, replacements, and dilatations that are taken into account in this study as national initiatives, practices, and challenges. Since the 1960s, transportation activity has been covered by the legal system (Eshetu, 2020).

The 1960s Ethiopia's Speed Limitations Regulation No. 361/1969 included laws governing traffic operation and safety measures, specifically those pertaining to vehicle emissions, noise, drunk driving, and pedestrians' priority at crosswalks, pedestrian road use, and transporting passengers on trucks. From that point on, Ethiopia has initiated and practiced frameworks, including the Transport Proclamation No. 468/2005, which replaced Proclamation No. 14/1992, the Vehicles Identification, Inspection, and Registration Proclamation No. 681/2010, the Vehicle Insurance Against Third Party Risk Proclamation No. 799/2013, the Driver's Qualification Certification License Proclamation No. 1054/2018, the National Road Traffic Safety Council Establishment Regulation No. 205/2011 which was later revised to 395/2017; and Road Transport Traffic Control Regulation No. 208/2011.

All the mentioned frameworks are meant to ensure safe road traffic flows with different degree of concentration to the road safety issues. With all of these initiatives, however, the number of fatalities on the roads has been rising over time. Why? The regulations fall short in emphasizing the very causes of traffic accidents, including not using seatbelts, cell phone use, drink-driving, under age driving, driving under the influence of substances, poor road conditions, and poor vehicle conditions(P<sub>12</sub>, P<sub>13</sub>, P<sub>14</sub>, P<sub>21</sub>). Other areas where the legal frameworks fall short are the speed limit, the non-use of helmets when riding motorbikes, and the level of penalties imposed for disobeying the law, according to the UN's Ethiopian road safety performance review (2020). Although improper road use behavior of pedestrians and street vendors are among the factors contributing to road crashes and fatalities, the framework did not specifically address these pedestrians' and street vendors' issues as mentioned by the study participants.

Moreover, as the study participants described, the financial and/or non-financial penalties or fines have not been applied being proportional to how serious the offenses are (P<sub>12</sub>, P<sub>14</sub>, and P<sub>21</sub>). Occasionally, offenses that violate the speed limit in quite different ways, time and places receive the same punishment. If severity of offenses were to determine severity of penalties, deviant road use behavior of some drivers and pedestrians could have been shaped accordingly (P<sub>8</sub>, P<sub>20</sub>).

### ***Road Safety Policy and Strategy***

The establishment of the NRSC in 2011 had the purpose of developing road safety strategies, plans, and programs. In order to fulfill the vision, mission, and goals established simultaneously, a 10-year road safety strategy for the transport sector was first introduced in the same year, 2011.

The goal was “to gradually reduce the number of road fatalities in 2010 by 30% by 2015, and by 50% by the end of the decade (2020)” in order to “halt deadly crashes on the nation's roadways” (Vision). The objective was in line with the Sustainable Development Goal of the United Nations, which called for a 50% reduction in road traffic fatalities and injuries by 2020 ( WHO, 2015). The strategy of the time included 13 sub-strategies, each with their own issues, objectives, activities, and performance indicators. These included national road safety, transport safety, save vehicles, low enforcement, and drink-driving, pedestrian safety, road crash data system, safe road, emergency medical service, road safety publicity and education, and road safety human resource capacity building strategies.

However, the interview data from the study participants and the United Nations’ 2020 Road Safety Performance Review show that the strategy’s implementation and actual reduction of road fatalities were hampered by a variety of factors, including leadership capacity issues represented by integrated and coordinated efforts among stakeholders with resources (finance, technology, and road safety expert personalities) used to implement, and lack of independent and responsible road safety leadership agency(P<sub>12</sub>,P<sub>13</sub>,P<sub>14</sub>). This weakness in the leadership system was expressed by one of the study participant as follows:

*As I have raised it already, nationally, we have a problem of not referring to policy and strategy documents of the bureau or ministry office we have assumed or get appointed to. There is no one who requests for the strategy or policy of the institution he/she is about to lead. Some have the expectation to be handed with the policy [upon arrival]. Others, if appointed on a new year, by disregarding the existing policy/strategy, he/she will draft a new annual plan. As a matter of fact, there is no one who refers to the existing strategies and policies to check whether tasks are flowing in the proper progress. Activities were done haphazardly. However, with the recent revisions and restructurings due to the newly endorsed regulation, improvements are appearing (P<sub>13</sub>).*

Where there is no proper and integrated road safety strategy implementation, the actual road safety audits or inspections, safety ratings of roads, review of road design standards, review of investment levels in road traffic agencies and assessment of the national emergency care system cannot be assessed.

The mentioned weakness is linked to the extent to which road safety policy has been led without comprehensive policy framework. This is expressed by one of the study participants from the newly established agency as, “It is a long time since the transport authority was established. However, it did not have policy. Not having a policy means not knowing where one is heading. It means that the direction of transportation was not clearly known in the absence of policy guidance” (P<sub>12</sub>). This has been what actually happening in the Ethiopian road safety system and indicates how the issues were led; it was just being led haphazardly, not by targeting at some visions, goals or objectives to reach at according to 12(57.14%) of the interviewees’ response

The data from the newly established national level lead agency shows that new strategy initiative is being underway since 2018/2019 within the transport sector policy that has brought demands to new ways of leading the issues. It is mentioned as a 10-year road safety strategic plan (2021 to 2030) that aligns with the country's 10-year strategic plan in the effort that it will practically integrate road safety issues at all levels of government, from the federal to regional, local, and city administrations. One of the study participants expressed the current political will of the country as follows:

*We have managed to get the attention of the office of the Prime Minister and the Parliament. Road safety is discussed as the primary issue when the transport agenda is raised. As a result, there has been a continuous engagement in multiple activities, including awareness-raising and follow-up tasks. We are planning to bring the case to a household level and make road traffic safety an important issue of concern (P<sub>12</sub>).*

### **Partnership and Road Safety Culture**

No one individual or group can guarantee road safety on their own. It should be the agenda of numerous parties, or stakeholders, involved in coordinated, systematic labor. In this study's context, the term "stakeholders" refers to all road users also, including pedestrians, cyclists, passengers, and vehicle drivers and riders. Though some actors are portrayed as major players in addressing the road safety issue, the study participants expressed their desire that road safety is "everybody's responsibility" (P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>6</sub>, P<sub>9</sub>, P<sub>12</sub>, P<sub>14</sub>). According to one participant from the road safety authority, the key stakeholder group is known as "the inner circle" comprising from the former members of the National Road Safety Council and regional & local government agencies. Members of the council that made up this organization were individuals in the leadership positions from the Ministries of Transportation, Health, Education, Justice, and from the Federal Police Commission, the Transport Authority, and the Ethiopia Roads Authority.

All of the aforementioned ministers, collectively referred to as the "inner circle," were presumed to have their own hierarchical units that cooperated with the ministers' horizontal networks at every level, ranging from the federal to regional and local governments. In this newly introduced and assumed work integration also, the Ministry of Transport and Logistics has similar hierarchical units from the minister level to the cities while the Road Safety and Insurance Fund Service Directorate is given the leadership role in matters relevant to road safety. Each region and city government has road safety subordinate units under the directorate, most of which are structured under the Regional Transport Bureaus and/or the Regional Police Commissions. In addition to the "inner circle" of stakeholders, participants also named other parties whom they believed to have been actively involved in the work to improve road safety. These parties include organizations like insurance firms that support the work financially, vehicle quality assurance firms, and driving schools.



The interview data also shows that there are practices for collaboration with international organizations. To mention a few collaborators named in the interviews were World Resource Institute (WRI), World Health Organization (WHO), European Union (EU), African Development Bank (ADB), and Governance Risk Compliance (GRC). These partners aid the Ministry of Transport and Logistics with trainings, technical assistance, soft skills, and financial support. The data also indicted that although their actual involvement is little, civic society organizations such as religious institutions, online groups and social media communities, nongovernmental organizations (NGOs), unions, and cooperatives are strategically highly important in the endeavor to address the issue of road safety.

Despite the existence of all the aforementioned partnership practices and potential targets, participants also reported that the leadership faces challenges with competence and tenacity in connecting the stakeholders strategically and fostering a shared road safety culture (P<sub>9</sub>, P<sub>12</sub>, P<sub>20</sub>, & P<sub>21</sub>). Interviewees from the lead agency underlined that it has long been a weakness of both the past and current lead agencies to attempt to unify and facilitate collaboration among all stakeholders due to the agency's limited capabilities. Due to the structural, strategic, and cultural distance between the lead agency and the stakeholders, the lead agency is unable to foster the save-life culture that is anticipated to be ingrained and shared by all stakeholders. One of the study participants from the national level lead agency put his hope of improvement in the following way:

*The recently accomplished re-structuring of different offices that were working independently and has now been brought to one will make the road safety effort far better. It is organized independently as Road Safety and Insurance Fund; it has a CEO and deputy CEO. It is well structured and staffed with over 300 plus employees. It has become an independent institution which can deal with all road safety issues. However, it is at an early stage now to make any evaluation (P<sub>14</sub>).*

Due to the structural, strategic, and cultural distance between the lead agency and the stakeholders, according to 12(57.14%) of the interviewees, the lead agency is unable to foster the save-life culture that is anticipated to be ingrained and shared by all stakeholders.

### ***Rising Road Safety Awareness and Public Support***

The leading agent is intended to educate policy-makers, relevant experts, and the general public on the significance of addressing road traffic fatalities and injuries in accordance with the standard. A highly significant strategy to reduce traffic crash fatalities is to raise public awareness of road safety risk factors, their effects, and prevention measures through mass media campaigns and other pertinent and contextual modalities like school curriculums, conferences, workshops, printed media, publication, etc.

In the curricula of kindergartens and adult education programs, for instance, road safety topics like how roads can be used (crossing roads, using traffic lights) are highlighted using

passages and graphic images. Some practiced and some intended orientations were also stated by one of the interviewed officials as follows:

*By using different media, we have made awareness to the public. By setting plans, we will use school media as source of public mobilization to make awareness about road safety. Since mobilization is part of publicity work, by using print media, television and radio, we have done some works on that. By supporting interested groups technically and being part of those media, we will intervene by conducting interviews and documentary films; we can say we have made an effort (P<sub>21</sub>).*

Although, according to participants of the study, attempts have been underway, it is not up to the expected extent. 13(61.9%) of the interview and FGD responses show that there is significant gap in accomplishing various road safety promotion activities and public mobilization, particularly linking public institutions with civic societies and the private sectors and integrating the awareness creating modalities in one pool of communication leadership

### ***Harmonize and Improve Road Safety Data Management***

Some of the practices and initiatives anticipated in the road safety data management system include the standard definition of a road traffic injury and death to be used by the police, and the integration of accident data among all pertinent data sources like the vital registration office, the traffic police, health centers and insurance firms, based on actual reporting using technology supported data collection and analysis methods. In this regard, one study participant from the national level lead agency described the practice of managing road safety data as follows:

*Road safety data are collected by the regional and city administration police and are provided to the federal police. The federal police then compile, analyze and document the data, making it available to anyone who requests for it (P<sub>12</sub>).*

The study participants (16(76.2%)) noted that the data management practice has significant problems. Since the entire data collection and transfer process is manual, and not integrated with other pertinent data sources, it is prone to errors, including due to underreporting, abuse and loss; this has as a result been distorting decision-making and forecasting of RTAs in the course on road safety leadership. In support of this, participants in the study from the leading agency said that in an effort to lessen the aforementioned challenges, the newly formed agency has begun a new initiative to build a digital database to replace the manual operating procedures adopting a scientific on-the-spot data collection approach (P<sub>21</sub>).

### **Conclusions and Suggestions**

The following conclusions and suggestions were given based on the findings and discussions that have been made thus far on risk factors for road safety and the leadership system.

Approximately more than half of RTAs are attributed to drivers' behavior, which is expressed in terms of drink-driving, careless use of seatbelts and helmets, under-age driving, uncontrolled nighttime driving, and excessive speeding that contributed the line's share of the registered accident. Lack of professional competence (knowledge, attitude, and skill), few but impactful rent seeking actions of the traffic controlling units at the grassroots, and maladministration of the driving license provisions are all factors linked to the RTAs. The study also concludes that road use behavior of pedestrians also affect the assurance of road safety. When claiming vehicles to be in the forefront of road safety, the study also found and concluded that vehicle technical conditions and unavailability have been contributing much for the fatalities. Ineffective road engineering and management as a cause of traffic accidents which represented by lack of standards, unfit traffic volume composition, non-uniform traffic control devices, and lack of road maintenance are all interrelated issues that need to be taken into consideration while we count road crash fatalities.

Linked to the aforementioned, the study found that the existing road safety leadership system expressed in terms of lead agency structure, policy, strategy, lows, stakeholders' involvement, and road safety data management has been considered a forefront role player in this study and concluded as follows.

Assurance of road safety needs a separate institutional arrangement that expected to oversee the problems and provide solutions in the form of policies and strategies. The study found that, in response to the needs, Ethiopia had established the National Road Safety Council of Ethiopia (NRSCE) having many sectors as a lead organization by the Ministry of Transport Regulation No. 205/2011 enacted by the Council of Ministers. However, the flaws with arrangement is that a lack of both vertically and horizontally integrated work and shared road safety culture. *The road safety issue was lead in a rather haphazard way and it was not based on an end-to-end integration of approaches and efforts.*

Several road traffic legal frameworks have been enacted in Ethiopia over the years to make road safety leadership practical. However, the regulations fall short in emphasizing the very causes of traffic accidents, including not using seatbelts, cell phone use, drink-driving, under age driving, driving under the influence of drug substances, poor road conditions, and poor vehicle conditions, the non-use of helmets when riding motorbikes, and the level of penalties imposed for disobeying the law in a consistent and integrated manner.

The other dimension by which the leadership system has been blamed is lack of practical road safety policy and strategy. The study found that there is no proper and integrated road safety policy and strategy. The actual road safety audits or inspections, safety ratings of roads, review of road design standards, and review of investment levels in road traffic agencies and assessment of the national emergency care system cannot be assessed. This implies that it *not having a policy means the leadership doesn't know where and how the behavior is heading. It means that the direction of transportation was not clearly known in the absence of policy and strategy guidance.*

Creating and developing partnership and collaboration is the other pillar by which the leadership of road safety tackle the problems with the road safety. The study found that though many partners want to cooperate and have been cooperating to the road safety leadership in the country, both the past and the current road safety leadership are unable to unify and facilitate collaboration among all stakeholders due to challenges with competence and tenacity in connecting the stakeholders strategically and fostering a shared road safety culture. In connection to this, working on promotion and public awareness need to be the agenda of road safety leadership. In this regard, there is significant gap in accomplishing various road safety promotion activities and public mobilization, particularly linking public institutions with civic societies and the private sectors and integrating the awareness creating modalities in one pool of communication leadership.

Road safety data management system is the other key deterrent for the leadership to make evidence based decision. In this regard, the study found that road data management practice has significant problems. Since the entire data collection and transfer process is manual, and not integrated with other pertinent data sources, it is prone to errors, including due to underreporting, abuse and loss; this has as a result been distorting decision-making and forecasting of RTAs in the course on road safety leadership.

Thus, road safety lead agency has to develop integrated structure, pertinent policy, strategy and legal frameworks that proactively heading the road safety assurance efforts. It is also expected a system to mobilize stakeholders for the development of a strong governance foundation, allocation of financial and human resources. Harmonized technology supported road safety data management system has to be in place for the concerned parties to make evidence based decision on all the actual and potential deadly road safety risk factors to be minimized.

### ***Data availability***

The data used to support and conceptualize the results and discussion of this study were collected through interview, FGD and secondary data review. All are included in the article.

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